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PATENT SPECIFICATION

371,638

Application Date: May 21, 1931. No. 14,971/31.

Complete Left: Aug. 8, 1931.

Complete Accepted: April 28, 1932.

PROVISIONAL SPECIFICATION.

Improvements in and relating to Toy Building Blocks.

I, WILLIAM MURPHY, of 2, Harcourt Road, Altrincham, County of Chester, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to toy building blocks which are characterized by perforations on every face, and curved toy building blocks which are characterized by perforations on the inner curved face and on the contiguous side faces, and to connecting pegs or dowels by which the said toy building blocks can be connected together in a variety of ways and erected into structures, this invention also relates to an improved method of forming the said toy building blocks.

It is known to form toy building blocks having circular perforations on every face, and curved toy building blocks having perforations on the inner curved face and contiguous side faces, by the method of cutting wood blocks to the required shape and size and subsequently drilling the said perforations on the faces of the said blocks.

Producing toy building blocks in the said manner is comparatively expensive by reason of the number of machines and skilled operations required for cutting the said blocks to the required shape and size and drilling the perforations on the faces of the said blocks.

One object of this invention is to provide a cheaper method of manufacturing toy building blocks of rectangular, cubical, cylindrical, or prism shape and which are perforated on every face, and curved toy building blocks which are perforated on the inner curved face and on the contiguous side faces.

Another object is to provide improved forms of toy building blocks and connecting pegs or dowels by which the said toy building blocks can be connected together and erected into a variety of structures.

In accordance with this invention, toy building blocks are made of papier-mâché or other suitable solidifiable plastic material which will set hard on drying or baking, and are formed to the required shape and size and perforated on the faces of the block by moulding or pressing,

the said perforations on the faces of the blocks being formed and located during the shaping of the said toy building blocks by moulding or pressing.

In this way the cost of manufacturing toy building blocks which are perforated on every face, is considerably reduced in comparison with the cost of cutting wood blocks to the required shape and size and subsequently drilling the perforations on the faces of the said blocks.

Also, moulding or pressing facilitates the forming of variously shaped perforations on the faces of the said toy building blocks and thus enables the use of variously shaped connecting pegs, such as for example, circular, rectangular, rhomboidal, or triangular shaped connecting pegs.

In accordance with this invention papier-mâché or other suitable solidifiable plastic material is formed into blocks of rectangular, cubical, cylindrical, or prism shape by moulding or pressing, and uniformly shaped or variously shaped perforations are formed and located at regular and definite distances apart on every face of the said blocks during the shaping of the said blocks by moulding or pressing.

Also in accordance with this invention, curved toy building blocks which are perforated on the inner curved face and on the contiguous side faces, are formed by mould or pressing solidifiable plastic material to the said curved shape, the said perforations on the inner curved face and contiguous side faces being formed and located during the shaping of the said curved toy building blocks by moulding or pressing.

Also in accordance with this invention, connecting pegs or dowels are made of a shape and size that will fit the said perforations on the faces of the said blocks so that the said blocks can be connected together by the said connecting pegs and erected into a variety of structures.

The perforations on the faces of a block can be all of uniform shape, or of various shapes and disposed in a variety of ways on the faces of the said block.

The location of the perforations in the

faces of the blocks is so arranged that any pair of perforations in one block will coincide with a pair of perforations in another block and the said blocks will
5 build up evenly when connected together

by the insertion of connecting pegs into the appropriate perforations on the faces of the said blocks.

Dated this 20th day of May, 1931.

WILLIAM MURPHY.

COMPLETE SPECIFICATION.

Improvements in and relating to Toy Building Blocks.

I, WILLIAM MURPHY, of 2, Harcourt Road, Altrincham, County of Chester, a British subject, do hereby declare the nature of this invention, and in what manner the same is to be performed, to be particularly described and ascertained
15 in and by the following statement:—

This invention relates to toy building blocks which are characterized by perforations on every face, and to curved toy building blocks which are characterized
20 by perforations on the inner curved face and contiguous side faces, and to connecting pegs or dowels by which the said toy building blocks can be connected together in a variety of ways and erected into structures, and this invention also relates to
25 an improved method of forming the said toy building blocks.

It is already known practice to form toy building blocks which are perforated
30 on every face, and curved toy building blocks which are perforated on the inner curved face and contiguous side faces, by the method of cutting wood blocks to the required shape and size and subsequently
35 drilling circular perforations on the faces of the said blocks.

Producing toy building blocks in the said manner is comparatively expensive by reason of the number of machines
40 and skilled operations required for cutting the said blocks to the required shape and size and drilling the said perforations on the faces of the said blocks.

The objects of this invention are to
45 provide a cheaper method of manufacturing toy building blocks of rectangular, or cubical, or cylindrical, or prism shape, which are perforated on every face, and curved toy building
50 blocks of suitable cross-section which are perforated on the inner curved face and contiguous side faces, and to provide improved forms of toy building blocks and connecting pegs or dowels by which
55 the said toy building blocks can be connected together and erected into a variety of structures. In order to accomplish the aforesaid objects, the present invention comprises the provision of a cheaper
60 method of manufacturing toy building blocks which are shaped and perforated on the faces as hereinbefore specified, the

said cheaper method of manufacturing consisting in making the said toy building blocks of any suitable solidifiable
65 plastic material which will set hard on drying or baking, the blocks being formed to the required shape and size and perforated on the faces of the blocks by means of moulding or pressing to
70 shape, and the said suitable solidifiable plastic material may also be such as can be readily coloured if required.

The present invention also comprises the provision of improved forms of toy
75 building blocks and connecting pegs or dowels by which the said toy building blocks can be connected together and erected into a variety of structures.

By means of moulding or pressing suitable solidifiable plastic material to the
80 required shape and size, the cost of manufacturing toy building blocks which are perforated on the faces as hereinbefore specified is considerably reduced in comparison with the cost of cutting wood
85 blocks to the required shape and size and subsequently drilling the perforations on the faces of the said blocks.

Moreover, the method of moulding or
90 pressing to shape facilitates the forming of variously shaped perforations on the faces of the said toy building blocks and thus enables the use of variously shaped connecting pegs, such as for example,
95 connecting pegs of circular, or rectangular, or rhombic, or triangular cross-section, the said perforations on the faces of the toy building blocks being shaped to correspond with the particular cross-sectional shape or shapes of connecting pegs
100 it is intended to use.

There are many materials which are suitable for use as components of the
105 aforesaid suitable solidifiable plastic material, such as for example, papier-mâché, paper pulp, wood pulp, fibrous material, plaster, cement, clay, and the like, the present invention not being
110 limited to the use of the said particular materials which are only mentioned here as examples and it must be clearly understood that the present invention comprises the use of any suitable solidifiable plastic material.
115

In accordance with this invention, any

suitable solidifiable plastic material is by means of moulding or pressing to shape, formed into blocks of rectangular, or cubical, or cylindrical, or prism shape, and perforated on every face, the perforations being either of uniform shape or of various shapes and formed and located either centrally on every face or at regular and definite distances apart on every face of the said blocks during the moulding or pressing to shape of the said blocks.

Also in accordance with this invention, any suitable solidifiable plastic material is by means of moulding or pressing to shape, formed into curved blocks of suitable cross-section and with each end of the block suitably shaped for connecting to other blocks, and perforated on the inner curved face and on the contiguous side faces, the perforations being either of uniform shape or of various shapes and formed and located on the said inner curved face and contiguous side faces of the curved blocks during the moulding or pressing to shape of the said curved blocks.

The aforesaid perforations on the faces of the blocks are formed to a circular, or rectangular, or rhombic, or triangular, or other convenient shape as may be required, and are located either centrally on the faces, or at regular and definite distances apart on the faces, or centrally and at regular and definite distances apart on the faces of the said blocks, and the perforations can be either of uniform shape or of various shapes on each block; and disposed in a variety of ways on the faces of the said blocks.

Also in accordance with this invention, connecting pegs or dowels of wood, metal, or other suitable material, are made to a shape and size that will fit the perforations on the faces of the aforesaid toy building blocks so that the said toy building blocks can be connected together by the said connecting pegs or dowels and erected into a variety of structures.

The aforesaid rectangular building blocks are made to convenient dimensions, for instance, into cubical blocks or cubes, and double-cubes (or blocks of the same cross-section size as the said cubes and twice the length of one of the said cubes), the dimensions of other units or elements comprised in a set of blocks being either multiples, or sub-multiples, or sub-divisions of the dimensions of the said cubes or double-cubes, so that they will fit together and build up evenly.

The perforations on the faces of the blocks are located either at the centre of each face of a block, or at regular and definite distances apart on each face of

a block so that any pair of perforations on a face of a block will coincide with a pair of perforations on a face of another block, and the said blocks will build up evenly when connected together by the insertion of connecting pegs into the appropriate perforations on the faces of the said blocks. A convenient method of locating the perforations on the faces of the blocks, is to divide the face of a cubical block or cube into sixteen equal squares and locate the perforations on the faces of the blocks so that besides being either central or at regular and definite distances apart, the centres of the perforations will coincide with points of intersection of the lines forming the said sixteen equal squares.

On the faces of curved blocks and on the faces of blocks whose dimensions are either multiples, or sub-multiples, or subdivisions of the aforesaid cubes or double-cubes, the perforations are located at the same distance apart and at the same distance from edges of blocks as corresponding perforations on the faces of the aforesaid cubes and double-cubes, so that when different blocks of a set are connected together by the insertion of connecting pegs into the appropriate perforations on the faces of the blocks, they will build up evenly.

Sets of blocks may be composed of blocks having all perforations on the faces, formed to a uniform shape, and connecting pegs or dowels of corresponding shape to fit the said perforations, and sets of blocks may also be composed of blocks having the perforations on the faces, formed to a variety of shapes, and connecting pegs or dowels of various shapes to fit the said variously shaped perforations.

The accompanying drawings show by way of example various forms of toy building blocks and connecting pegs or dowels made in accordance with this invention, also by way of example various structures made with the said toy building blocks and connecting pegs or dowels.

Various modifications may be made in the forms of blocks and shapes of perforations and manner of disposition of perforations on faces of blocks, from those shown in the accompanying drawings, without departing from the scope of the present invention, and it must be clearly understood that this invention comprises other forms of blocks and other shapes of perforations and other dispositions of the perforations on the faces of the blocks besides those shown by way of example on the accompanying drawings.

Various forms of toy building blocks and connecting pegs and structures are

shown on the accompanying drawings, as follows:—

The Figs. 1 to 12, show cubical blocks or cubes, perforated on every face, the perforations *p* being of various shapes and arranged in various ways. The shapes of the perforations *p* on Figs. 1, 2, 5 and 7, are rectangular; on Figs. 3, 9 and 10, rhombic; on Figs. 4 and 6, circular; on Fig. 8, octagonal, and on Figs. 11 and 12, triangular.

Figs. 13, 14 and 15, show double-cubes, perforated on every face.

Fig. 16, a rectangular block half the size of Figs. 13, 14 or 15.

Fig. 17, a rectangular block half the size of Figs. 5 or 6.

Fig. 18, a rectangular block half the size of Fig. 16.

Fig. 19, a rectangular block half the size of Fig. 17.

Figs. 20 and 21, three sided prisms or angle blocks.

Figs. 22, 23, 24 and 30, cylindrical blocks.

Figs. 25, 26, 27, 28 and 29, connecting pegs or dowels of various cross-sectional shapes, shown as follows:—

Fig. 25, circular, Fig. 26, triangular, Fig. 27, rectangular, Fig. 28, rhombic.

Fig. 29 shows an elongated connecting peg for use as in structures similar to Fig. 32.

Fig. 31. Curved block of rectangular cross-section and perforated on the inner curved face A and contiguous side faces B with perforations *p*.

Fig. 32. A wheel structure. Fig. 33. A railway engine.

Fig. 34. A sign post. Fig. 35. A bridge.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. Rectangular, or cubical, or cylindrical,

or prism shaped toy building blocks of suitable solidifiable plastic material perforated on every face by means of moulding or pressing to shape, and curved toy building blocks of suitable solidifiable plastic material having suitably shaped ends and suitably shaped cross-section perforated on the inner curved face and contiguous side faces by means of moulding or pressing to shape, and in combination with the aforesaid toy building blocks, connecting pegs or dowels to fit the perforations on the faces of the aforesaid toy building blocks, substantially as hereinbefore described and shown.

2. Rectangular, or cubical, or cylindrical, or prism shaped toy building blocks of suitable solidifiable plastic material perforated on every face by means of moulding or pressing to shape, and curved toy building blocks of suitable solidifiable plastic material having suitably shaped ends and suitably shaped cross-section perforated on the inner curved face and contiguous side faces by means of moulding or pressing to shape, substantially as hereinbefore described and shown.

3. Rectangular, or cubical, or cylindrical, or prism shaped toy building blocks of suitable solidifiable plastic material perforated on every face by means of moulding or pressing to shape, substantially as hereinbefore described and shown.

4. Curved toy building blocks of suitable solidifiable plastic material having suitably shaped ends and suitably shaped cross-section perforated on the inner curved face and contiguous side faces by means of moulding or pressing to shape, substantially as hereinbefore described and shown.

5. Toy building blocks, substantially as hereinbefore described and shown.

Dated this 6th day of August, 1931.

WILLIAM MURPHY.

[This Drawing is a reproduction of the Original on a reduced scale]

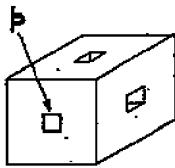


FIG. 1.

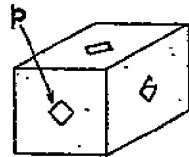


FIG. 2.

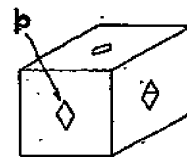


FIG. 3.

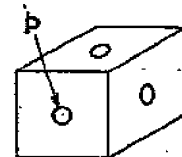


FIG. 4.

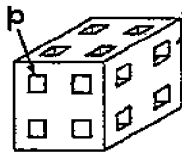


FIG. 5.

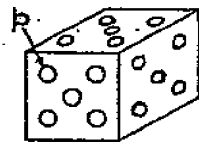


FIG. 6.

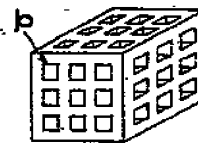


FIG. 7.

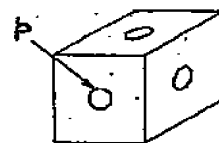


FIG. 8.

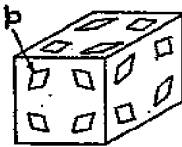


FIG. 9.

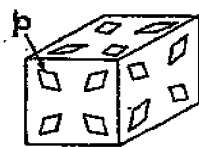


FIG. 10.

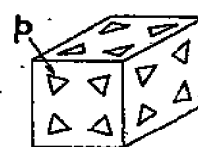


FIG. 11.

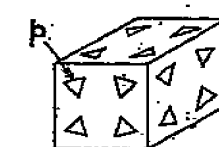


FIG. 12.

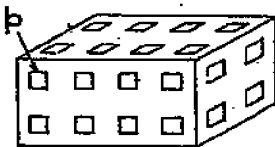


FIG. 13.

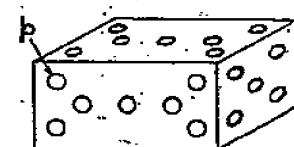


FIG. 14.

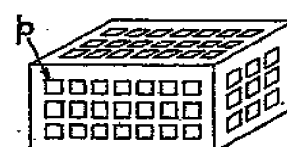


FIG. 15.



FIG. 16.

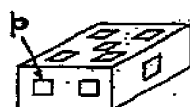


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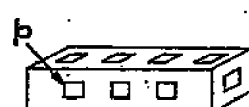


FIG. 18.



FIG. 19.

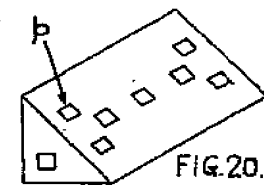


FIG. 20.

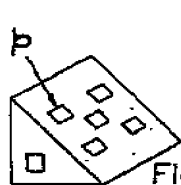


FIG. 21.

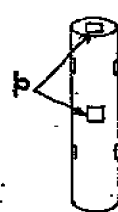


FIG. 22.

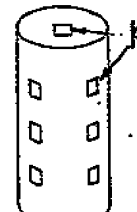


FIG. 23.

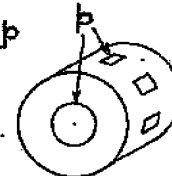


FIG. 24.



FIG. 25, FIG. 26, FIG. 27, FIG. 28, FIG. 29, FIG. 30.

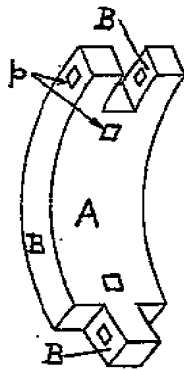


FIG. 31.

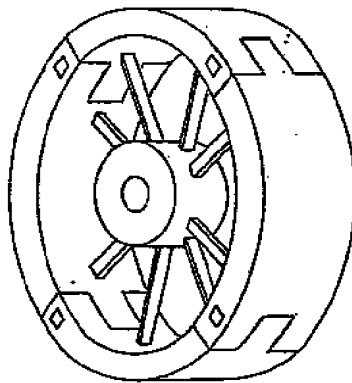


FIG. 32.

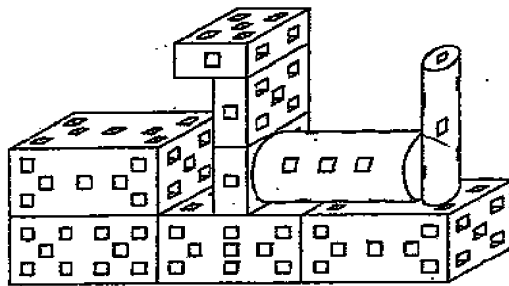


FIG. 33.

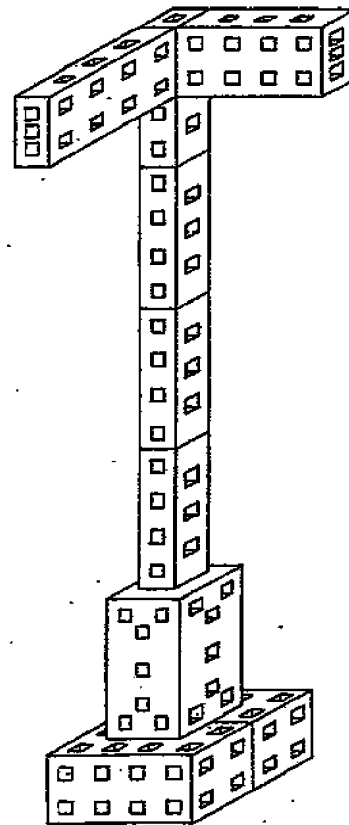


FIG. 34.

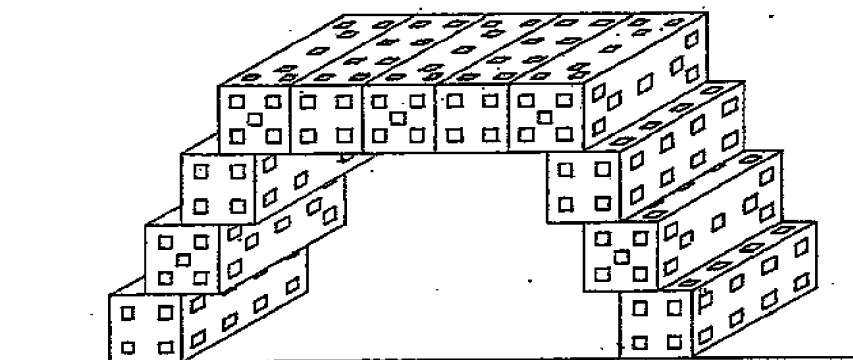


FIG. 35.

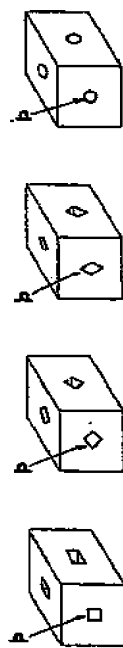


FIG. 1

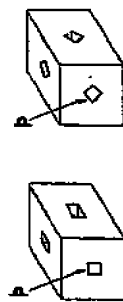


FIG. 2

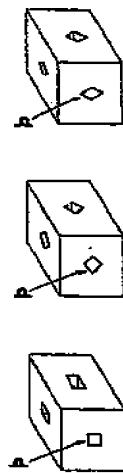


FIG. 3

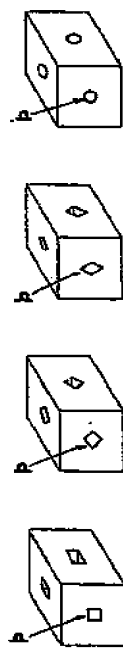


FIG. 4

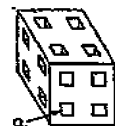


FIG. 5

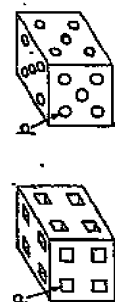


FIG. 6

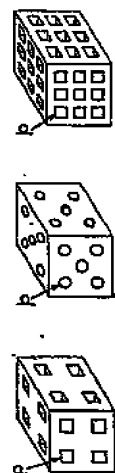


FIG. 7

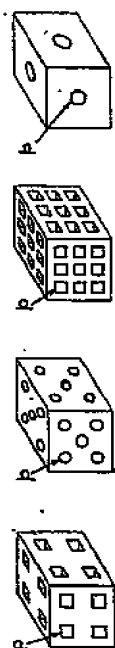


FIG. 8

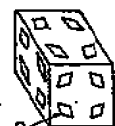


FIG. 9

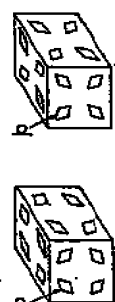


FIG. 10

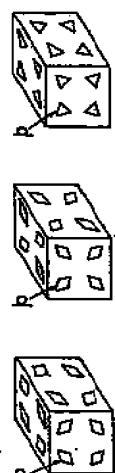


FIG. 11

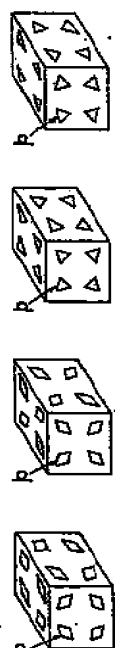


FIG. 12

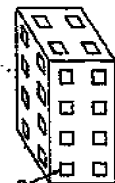


FIG. 13

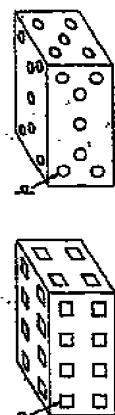


FIG. 14

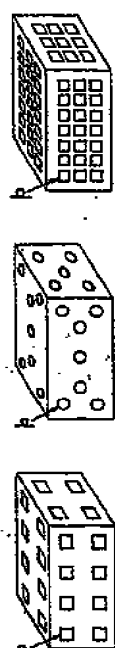


FIG. 15



FIG. 16



FIG. 17



FIG. 18



FIG. 19

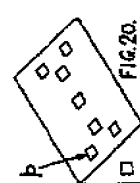


FIG. 20

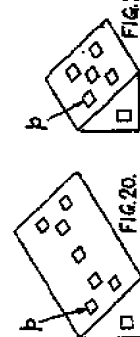


FIG. 21

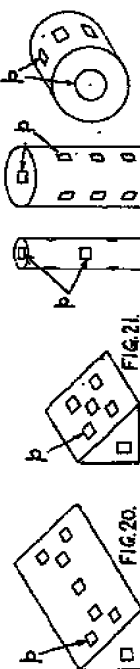


FIG. 22

FIG. 23

FIG. 24

FIG. 25

FIG. 26

FIG. 27

FIG. 28

FIG. 29

FIG. 30

FIG. 31

FIG. 32

FIG. 33

FIG. 34

FIG. 35

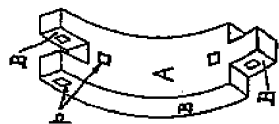


FIG. 31

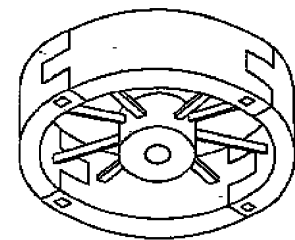


FIG. 32

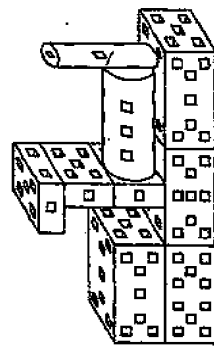


FIG. 33

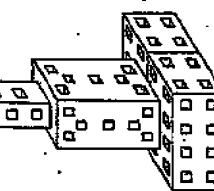


FIG. 34

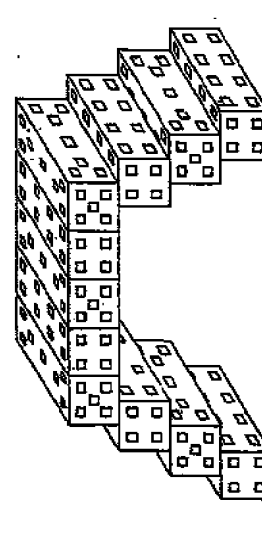


FIG. 35

[This Drawing is a reproduction of the Original on a reduced scale.]

